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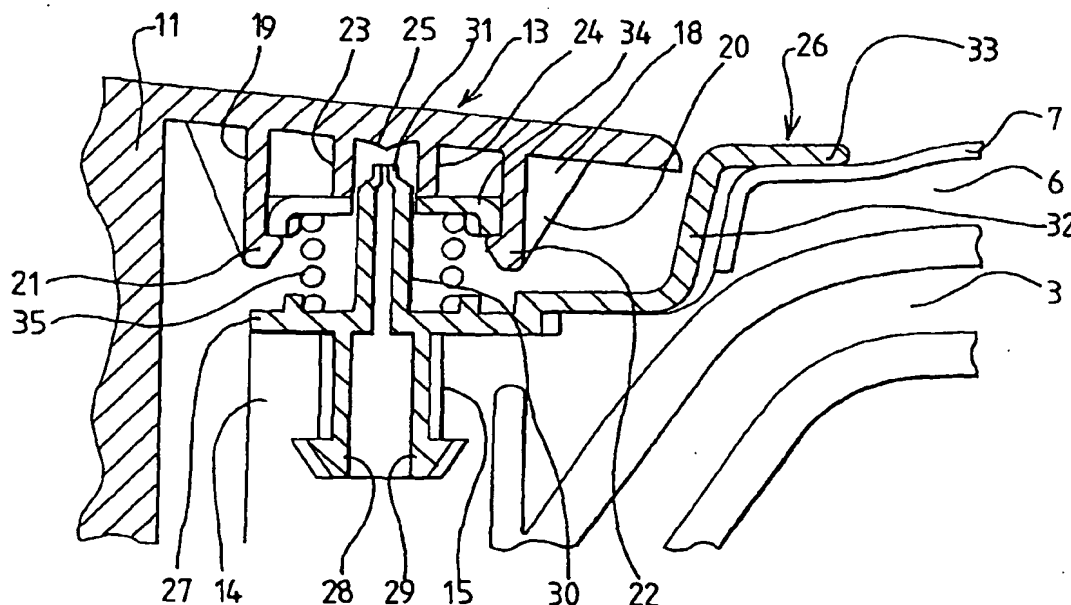
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[Continued on next page]

(54) Title: A STEERING WHEEL



(57) Abstract: A steering wheel is disclosed, the steering wheel comprising a frame as radially outwardly-extending spokes (3, 4) and a rim (5). The frame defines a recess to receive an air-bag unit (9). The steering wheel is provided with a number of mounting elements (26) associated with a respective spoke (3, 4). Each mounting element (26) is connected to the steering wheel and has a portion (33) overlying part of the steering wheel. The air-bag unit (9) is connected to each mounting element (26) by means of a resiliently-biased connection to permit relative movement of the air-bag unit (9) with respect to the steering wheel, such that the peripheral part of the air-bag unit (9) defines a pre-determined gap between itself and the overlying portion (33) of the mounting element (26).



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A. CLASSIFICATION OF SUBJECT MATTER

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B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 20103891 U1 (TRW AUTOMOTIVE SAFETY SYSTEMS GMBH & CO. KG), 16 May 2002 (16.05.02) --	1-10
A	US 5228362 A (B.S. CHEN ET AL), 20 July 1993 (20.07.93) --	1-10
A	EP 0785107 A1 (GERSTEEN EXERCANT SES ACTIVITES SOUS LA DENOMINATION ISODELTA), 23 July 1997 (23.07.97) --	1-10
A	EP 1153808 A2 (TOYODA GOSEI CO., LTD.), 14 November 2001 (14.11.01) --	1-10

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2001050473 A (Y. FUJITA), 13 December 2001 (13.12.01) -- -----	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

26/07/03

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Patent document cited in search report			Publication date	Patent family member(s)		Publication date
DE	20103891	U1	16/05/02	EP	1238868 A	11/09/02
				US	2002124682 A	12/09/02
US	5228362	A	20/07/93	US	2002034495 A	21/03/02
EP	0785107	A1	23/07/97	AU	1178697 A	20/08/97
				FR	2743771 A,B	25/07/97
				WO	9727083 A	31/07/97
EP	1153808	A2	14/11/01	JP	2001325853 A	22/11/01
				US	6508485 B	21/01/03
				US	2002011721 A	31/01/02
US	2001050473	A	13/12/01	US	6478330 B	12/11/02
				EP	0823362 A	11/02/98
				JP	3175621 B	11/06/01
				JP	3284355 B	20/05/02
				JP	3412464 B	03/06/03
				JP	10100834 A	21/04/98
				JP	10100907 A	21/04/98
				JP	10106382 A	24/04/98
				JP	2000052903 A	22/02/00
				US	6139051 A	31/10/00
				US	6161863 A	19/12/00
				US	6299201 B	09/10/01